

CLAIMS:

1. Active vibration isolation system arranged to isolate a payload (39) from earth movements, said payload (39) being supported by means of at least one spring (43), said system comprising a sensor for sensing a displacement of said payload (39) and generating a displacement signal, a controller (49) for receiving said displacement signal and generating a control signal based on said displacement signal, and an actuator (47) arranged to generate an actuation force based on said control signal, characterized in that said system comprises a mass (41) supporting said payload (39), said sensor is arranged to sense a displacement of said payload (39) relative to said mass, and said actuator is arranged to apply said actuating force to said mass (41), such that said payload (39) is used as an inertial reference mass.
2. Active vibration isolation system according to claim 1, wherein said payload (39) supports one or more devices (57).
3. Active vibration isolation system according to claim 1 or 2, wherein said mass (41) is supported by a body (16; 51) via a further spring (45), and said actuator (47) is arranged to apply said actuating force between said mass (41) and said body (16; 51).
4. Active vibration isolation system according to claim 3, wherein said body is earth (16).
5. Active vibration isolation system according to claim 3, wherein said body is a base frame (51) supported by earth (16) by means of at least one leg (53, 55).
6. Active vibration isolation system according to any one of the claims 3-5, wherein said further spring (45) is arranged to provide said mass (41) with an eigenfrequency in the range from 1-10 Hz.

7. Active vibration isolation system according to any one of the preceding claims, wherein said spring (43) is arranged to provide said payload (39) with an eigenfrequency in the range from 0.1-10 Hz.
- 5 8. Lithography apparatus provided with an active vibration isolation system according to any one of the preceding claims.
9. Method of active vibration isolation to isolate a payload (39) from earth movements, comprising:
- 10 - supporting said payload (39) by means of at least one spring (43),
- providing a sensor for sensing a displacement of said payload (39) and generating a displacement signal,
- generating a control signal based on said displacement signal,
- generating an actuation force based on said control signal,
- 15 characterized by
- supporting said payload (39) by a mass (41),
- sensing a displacement of said payload (39) relative to said mass, and
- applying said actuating force on said mass (41), such that said payload (39) is used as an inertial reference mass.
- 20 10. Method according to claim 9, comprising supporting one or more devices (57) by said payload (39), and using said one or more devices (57) in an industrial process.